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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
NGO, KIET TUAN	

ART UNIT	PAPER NUMBER
2195	

DATE MAILED: 05/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/014,337	DING ET AL.	
	Examiner	Art Unit	
	Kiet T. Ngo	2195	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/10/2001*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 December 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1- 48 are pending in this application.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 17 - 32 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. Claims 17-32 reference a "carrier medium" which could comprise of intangible media such as signals, carrier waves, transmissions, optical waves, transmission media or other media incapable of being touched or perceived absent the tangible medium through which they are conveyed as and as such are rejected.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1 – 13, 15, and 17 - 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A. The following claim language is indefinite:

(i) As per claim 1, lines 6-7, it is not clear what are "the plurality of system performance metrics" in the log of resource usage with respect to resources consumed by the processes. (i.e. what are the metrics and how do they relate the processes and/or to the transactions ?);

Line 8, it is uncertain how the timestamps in the log of transactions are "compared" to the time periods in the log of resource usage. (i.e. in what way are these times and time periods being compared to each with respect to the log of transactions and the log of resource usage?);

Line 10, it is unclear what is the determining factor or what is the criteria for determining what transactions used what resources based on comparing timestamps in the log of transactions to periods of time in log of resource usage. (i.e. is there some set scale to compare against or value that has to be met in order to relate a transaction to a resource used?);

(ii) As per claim 2, line 4, it is uncertain how a correlation coefficient is "computed" based on transaction activities and resource usage. (i.e. is there a formula or another method that is used to determine the variable?);

Line 6, it is uncertain how the correlation coefficient is "analyzed" in regards to determining whether or not a resource was used by that transaction. (i.e. how is the correlation coefficient used when looking at whether or not a transaction is associated with a resource? Does this coefficient's value tell us whether or not a transaction used a resource?)

(iii) As per claim 5, line 2, it is unclear how the performance of the computer system is "modeled" with respect to the workload. (i.e. is the computer system performance graphed or are physical displays used to show performance?)

(iv) As per claim 13, line 2, it is unclear how the method of determining which transaction used which resources is performed "automatically". (i.e. when attempting to make this determination of relationships between system resources to transactions how is the process automatic? Is there a machine that reviews the logs of resources and transactions that performs this operation?)

(v) As per claim 15, line 3, and claim 16, line 4, it is uncertain as to how processes "correlate" to the system performance metrics when determining workload. (i.e. what associations are there between processes and sets of system performance metrics that allow us to group processes into workloads?)

(vi) As per claims 17-48, these claims repeat the same deficiencies as claims 1-16 above. Correction is required.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1 – 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agrawal U.S. Patent (#5,761,091).

9. As to claims 1, 17, and 33, Agrawal teaches a method of;

generating a log of transactions performed in a computer system wherein the log of transactions (jobs/processes) comprises a time value (periodic sampling time) for each transaction [col. 3, lines 45 – 47; col. 4, lines 56 – 63; col. 5, lines 57 – 67; Figure 5];

generating a log of resource usage in the computer system (measuring the resource usage by one or more process implemented subsystems of the computer system by periodic sampling), wherein the log of resource usage comprises one or more periods of time during which each of a plurality of resources is used [col. 3, lines 49 – 53], and wherein the log of resource usage comprises a plurality of system performance metrics (system resources) which reflect resource consumption by one or more processes that performed the transactions [col. 4, lines 56 – 63; col. 7, lines 39 – 43; col. 8, lines 39 –45];

comparing the times in the log of transactions to the periods of time in the log of resource usage [col. 5, lines 56 – 67, col. 6, lines 1 – 2];

determining which transactions (jobs/processes) used which resources (utilization numbers) based on said comparing the times in the log of transactions to the periods of time in the log of resource usage [col. 6, lines 2 – 9];

but Agrawal fails to specifically teach the time in the log of transactions is a timestamp or logging of a timestamp for each process in the log of processes.

10. It would have been obvious to one of ordinary skill in the art at the time of the invention was made to that in order for one to discern one sampling from another during periodic interrupts (i.e. from one CPU tick to another) [col. 4, lines 55 – 59; col. 5, lines 57 – 66], a timestamp, or time when the periodic sampling was taken, for those processes would have to be associated with the sampling. This would have enabled a user to know the exact time when resource usage statistics were taken for each periodic sampling time over each interval.

11. As to claims 2, 18, and 34, Agrawal teaches when determining which processes used which resources some type of variable would be calculated and analyzed in order to generate a scale of relationships between processes and resource used [col. 6, lines 36 – 48]. Agrawal doesn't specifically mention of computing a coefficient in order to determine how correlated a transaction is to a resource but does teach of determining which processes used which resources. However, It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used a coefficient in resource usage calculation.

12. As to claim 3, 19, 35, Agrawal fails to specifically mention the teaching of determining the amount of resources used by each transaction. However, Agrawal discloses the determining of resource usage by a group of transactions, or workload. [col. 6, lines 51 – 57; Figure 6] It would have been obvious to one of ordinary skill in the art at the time the invention was made to have not grouped the process into workloads

and compute the resource usage for each transaction. This would give a better picture of how each transaction affected resource usage.

13. As to claim 4, 8, 20, 24, 36, and 40, Agrawal discloses the grouping of processes into workloads [col. 6, lines 50-56; Figure 8] based on determining resource usage of transactions.

14. As to claim 5, 21, and 37, Agrawal diagrams a model of processes resource usage consumption [col. 8, lines 6 – 12; Figure 8].

15. As to claim 6, 22, and 38, Agrawal teaches the modeling of a computer system, [col. 8, lines 6 – 12; Figure 8], but fails to mention the alteration of a configuration of the computer system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used this modeling technique in view of system performance to make appropriate adjustments to a computer system's configuration. This would give the user a visual reference as to what changes would have to be made.

16. As to claim 7, 23, and 39, Agrawal teaches determining an aggregate workload, wherein the aggregate workload comprises a plurality of workloads [col. 6, lines 50-56; Figure 8].

17. As to claim 9, 25, and 41, it encompasses the same subject matter as that of claim 3, 19, and 35 respectively and as such are rejected under the same terms.

18. As to claim 10, 26, and 42, Agrawal teaches the grouping of processes based on process name and the username (i.e. owner of the process). It would have been obvious to one skilled in the art at the time the invention was made that this would imply thatprocesses having a same owner, (i.e. username), belong to a same one of the workloads [col. 6, lines 50-56].

19. As to claim 11, 27, and 43, Agrawal teaches the grouping of processes based on owners group [Figure 8; col. 6, lines 50-56].

20. As to claim 12, 28, and 44, Agrawal teaches a process tree [col. 5, lines 21 – 27; Figure 3] and the grouping of processes based on some common factors [col. 6, lines 50-56] but fails to specifically mention the grouping based on process tree. It would have been obvious to one of ordinary skill in the art at the time the invention was made to group processes whose process tree belong to a same of the workloads together as it is another criteria for grouping and allows the user to see a process trees affects on resource usage.

21. As to claim 13, 29, and 45, Agrawal discloses measuring the resource usage by one of more process-implemented subsystems of the computer system by periodic

sampling [col. 3, lines 49 – 51]. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have recognized this periodic sampling of resource usage statistics would have had to been automated in order to get a correct sample at each periodic time interval.

22. As to claim 14, 30, and 46, Agrawal teaches;

determining a list of transactions (processes) performed on a computer system over a time interval (sampling the CPU on every tick) [col. 4, lines 55 – 63];

determining a list of system performance metrics (CPU utilization) for the computer system over the time interval, wherein the system performance metrics reflect resource consumption by one or more processes that performed the transactions [col. 4, lines 55 – 63]; and

determining a correlation coefficient (capture ratio) for each of one or more pairs of system performance metrics and transactions (or processes) [col. 6, lines 36 – 48], Agrawal fails to teach the determining a supporting set of system performance metrics and transactions whose correlation coefficient exceed a desired value as well as using the supporting set to determine a workload which comprises a meaningful partition of transactions performed on the computer system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to group system performance metrics together (into workloads) to view the relationship between different resources and their usage as taught by Agrawl. For example what an increase in CPU usage affects are to memory usage, network bandwidth, or others.

23. As to claim 15, 31, and 47, refer to claim 14 for rejection. It is noted that claim 15 mentions processes and not transactions. It is well known in the art that a transaction (discrete steps taken by a computer system) is equivalent to a process (sequence of steps undertaken by a program) [Microsoft Computer Dictionary pg. 422, pg. 526]. Therefore this claim limitation is taught in claim 14.

24. As to claim 16, 32, and 48, Agrawal discloses grouping processes (each cell in the cube or Unix processes) whose resource consumption as reflected by system performance metrics (resources consumed by Oracle) correlates with the partition of transaction in the workload (one of the many Unix processes involved in performing work on behalf of one such entity (workload)). [col. 7, lines 22 – 29].

25. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

"Method and System for Monitoring the Performance of Computers in Computer Networks Using Modular Extensions" Burgess U.S. Patent (#5,696,701).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kiet T. Ngo whose telephone number is (571)272-6451. The examiner can normally be reached on Mon. - Fri. 830-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng-An Ai can be reached on (571)272-3756. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KTN

LEWIS A. BULLOCK, JR.
PRIMARY EXAMINER